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(54) **MULTIMEDIA SCHEDULE PRESENTATION SYSTEM**

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(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,600,989 A	7/1986	Schwartz et al.	364/200
4,706,121 A	11/1987	Young	358/142
5,038,211 A	8/1991	Hallenbeck	358/142

(List continued on next page.)

**FOREIGN PATENT DOCUMENTS**

EP	0 435 370 A2	7/1991	H03J/9/06
EP	0 691 651 A1	1/1996	G11B/27/34
EP	0 764 951 A1	3/1997	G11B/27/034

(List continued on next page.)

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(57) **ABSTRACT**

A multimedia schedule presentation system provides a program guide area which is a list of the programs that are currently airing, was aired, or is scheduled. The program guide area is semi-transparent and overlays on the broadcast program material that the user is currently watching. The invention displays the program guide information in two different modes: two column or three column. The two column mode displays the available channels in a rotating endless list fashion in the left hand column and the programs for the highlighted channel in the right hand column. The current time period is shown above the left column on the screen and is easily changed by the user. Below the time display is the listing of the channels available to the user. Next to each channel number is the station ID and the title of the current program that is being aired. A description of the current highlighted program is displayed above the two columns. The right hand column displays a schedule of the programs for the particular channel, beginning at the time indicated above the left column. The program name and start time are displayed. The program list in the right hand column can be shown in two intuitive forms. One lists the start time of each program next to the program name in descending order from the most recent time to the latest time. The second continues the time intervals by listing each half, quarter hour, or selectable intervals with duration of the program indicated by an indicator extending from the program start time down to the program end time. The three column mode adds a higher level column to the left of the channel column and contains the sorting methods available to the user. The second column presents the available channels that correspond to the sorting method with the second and third columns consistent with that of the two-column method.

**114 Claims, 34 Drawing Sheets**

